



GP/1731

DKT 10114

#4

THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Huai N. Cheng,  
Simon Delagrave, Qu-Ming Gu, and  
Dennis J. Murphy

Group Art Unit: 1731

Serial No.: 10/027,149

Examiner: unknown

Filed: December 20, 2001

For: BIO-BLEACHING OF PULP USING LACCASE, MEDIATOR AND CHAIN  
TRANSFER AGENT

Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

**INFORMATION DISCLOSURE STATEMENT**

Relevant art for the above-referenced Application is submitted on the enclosed PTO form 1449. Pursuant to the duty of disclosure set forth in 37 C.F.R § 1.56 and in accordance with the provisions of 37 C.F.R§ § 1.97 and 1.98.

Copies of the above-noted documents are enclosed as is a completed copy of the PTO 1449 Form. Accordingly, the Examiner is respectfully requested to consider the documents and to indicate such consideration by returning a signed and initialed copy of the PTO-1449 Form.

It is pointed out that while this filing is more than three (3) months from the application filing date, this IDS is being filed before preparation of an Office Action and no fee should be due.

Should any fee be required, the undersigned hereby authorized the Commissioner to charge any fee necessary for the consideration of this statement, including any payment under 37 CFR 1.17(p), and to credit any

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overpayment to Hercules Incorporated's Deposit Account No. 08-1800. This document is submitted in duplicate for this purpose.

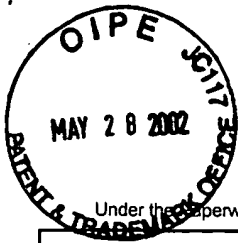
Should the Examiner have any matter unresolved by this response, he is invited to telephone the undersigned at the below listed telephone number in order to expedite prosecution.

Respectfully submitted,



Joanne Mary Fobare Rossi  
Attorney for Applicant  
Reg. No. 43,061

Hercules Incorporated  
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May 22, 2002  
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December 20, 2001

GROUP

1731

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	5,885,304	03/23/99	Schneider et al.			
	6,242,245	06/05/01	M. Amann et al.			
	6,103,059	08/15/00	Call			
	6,358,904	03/19/02	Call			

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**Foreign Patent Documents**

	2,248,530	03/26/99	Canada			
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	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
	WO 94/29510	06/16/94	(See also US 6,103,059)				✓
	WO 94/29425	12/22/94					✓
	WO 97/36041	02/10/97					✓
	WO 99/32652	01/07/99					
	2,304,107	03/12/97	United Kingdom				

**OTHER DOCUMENTS** (Including Author, Title, Date, Pertinent Pages, Etc.)

	H. P. Call, I. Mucke, HISTORY, OVERVIEW AND APPLICATIONS OF MEDIATED LIGNOLYTIC SYSTEMS ESPECIALLY LACCASE-MEDIATOR-SYSTEMS (LIGNOZYMO - PROCESS), Journal of Biotechnology, 53, 163-202 (1977)
	A. E. Palmer, et al., SPECTROSCOPIC STUDIES AND ELECTRONIC STRUCTURE DESCRIPTION OF THE HIGH POTENTIAL TYPE 1 COPPER SITE IN FUNGAL LACCASE; IN INTO THE NE, Journal of American Chemical Society, 121, 7138-7149(1999)

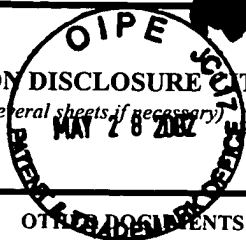
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Docket Number (Optional)

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Application Number

10/027,149

Applicant(s)

H. Cheng, S. Delagrave, Q. Gu, and D. Murphy

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INITIAL

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

P. Bajpai, TOPICAL PAPER, APPLICATIONS OF ENZYMES IN THE PULP AND PAPER INDUSTRY, Biotechnology Prog. 15, 147-157 (1999)

K. Li, R. F. Helm., K. E Eriksson, Biotechnology Application Biochem. (1998) 27, 239-243

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R. Bourbonnais, M. G. Paice, ENZYMATIC DELIGNIFICATION OF KRAFT PULP USING LACCASE AND A MEDIATOR, Tappi Journal., 79, pages 199-204 (1996)

R. Bourbonnais, M. G. Paice, B. Freiermuth, E. Brodie, S. Borneman, REACTIVITIES OF VARIOUS MEDIATORS AND LACCASES WITH KRAFT PULP AND LIGNIN MODEL COMPOUNDS, Applied and Environmental Microbiology, 63, pages 4627- 4632 (1997)

Andrzej. Leonowicz, et al., FUNGAL LACCASE; PROPERTIES AND ACTIVITY ON LIGNIN, Journal of Basic Microbiology 41,(304) 185-227 (2001)

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